



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : C12N 15/12, C07K 14/475, C12Q 1/68, G01N 33/53, 33/50, C07K 16/22, A61K 38/18, 48/00, G01N 33/68		A3	(11) International Publication Number: WO 00/01815 (43) International Publication Date: 13 January 2000 (13.01.00)
(21) International Application Number: PCT/DK99/00384 (22) International Filing Date: 5 July 1999 (05.07.99) (30) Priority Data: 1998 00904 6 July 1998 (06.07.98) DK 60/092,229 9 July 1998 (09.07.98) US 1998 01048 19 August 1998 (19.08.98) DK 60/097,774 25 August 1998 (25.08.98) US 1998 01265 6 October 1998 (06.10.98) DK 60/103,908 13 October 1998 (13.10.98) US 09/347,613 2 July 1999 (02.07.99) US (63) Related by Continuation (CON) or Continuation-in-Part (CIP) to Earlier Application US Not furnished (CON) Filed on Not furnished (71) Applicant (for all designated States except US): NEUROSEARCH A/S [DK/DK]; Pederstrupvej 93, DK-2750 Ballerup (DK).		(72) Inventors; and (75) Inventors/Applicants (for US only): JOHANSEN, Teit, E. [DK/DK]; Stampeengen 26, DK-2970 Hørsholm (DK). BLOM, Nikolaj [DK/DK]; Nebbegaardsbakken 51, DK-2400 København NV (DK). HANSEN, Claus [DK/DK]; Havnevej 40, DK-4300 Holbæk (DK). (74) Common Representative: NEUROSEARCH A/S; Patent Dept., Pederstrupvej 93, DK-2750 Ballerup (DK). (81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 17 February 2000 (17.02.00)	
(54) Title: NEUROTROPHIC FACTORS			
(57) Abstract			
<p>The invention relates to neublastin neurotrophic factor polypeptides, nucleic acids encoding neublastin polypeptides, and antibodies that bind specifically to neublastin polypeptides as well as methods of making and methods of using the same.</p>			

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INTERNATIONAL SEARCH REPORT

Inter il Application No

PCT/DK 99/00384

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N15/12 C07K14/475 C12Q1/68 G01N33/53 G01N33/50
 C07K16/22 A61K38/18 A61K48/00 G01N33/68

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12N C07K C12Q G01N A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	BALOH R.H. ET AL.: "Artemin, a novel member of the GDNF ligand family, supports peripheral and central neurons and signals through the GFRalpha3-RET receptor complex" NEURON, vol. 21, no. 6, December 1998 (1998-12), pages 1291-1302, XP000857438 the whole document ---	1-5, 7-11, 14-23, 33-43, 45-53, 55, 56, 62, 64
X	Nucleotide Sequence Database EMBL Entry AA844072, Accession Number AA844072 10 March 1998 86% identity with Seq.ID:1 nt.32-308 88% identity with Seq.ID:3 nt.28-294 reverse orientation XP002125455 the whole document ---	3-5, 7-12, 49
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☒ Further documents are listed in the continuation of box C.

☐ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance
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 "O" document referring to an oral disclosure, use, exhibition or other means
 "P" document published prior to the international filing date but later than the priority date claimed

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 "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
 "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
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Date of the actual completion of the international search

16 December 1999

Date of mailing of the international search report

29/12/1999

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INTERNATIONAL SEARCH REPORT

Inter. : Application No

PCT/DK 99/00384

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	ROBERTSON K. AND MASON I.: "The GDNF-RET signalling partnership" TRENDS IN GENETICS, vol. 13, no. 1, January 1997 (1997-01), pages 1-3, XP004015047 ISSN: 0168-9525 ----	
A	LAPCHAK P.A.: "Therapeutic potentials for Glial Cell Line-Derived Neurotrophic Factor (GDNF) based upon pharmacological activities in the CNS" REVIEWS IN THE NEUROSCIENCES, vol. 7, no. 3, 1996, pages 165-176, XP000857769 ----	
A	UNSICKER K.: "GDNF: a cytokine at the interface of TGF-betas and neurotrophins" CELL & TISSUE RESEARCH, vol. 286, no. 2, November 1996 (1996-11), pages 175-178, XP000857765 ----	
A	LAPCHAK P.A. ET AL.: "Pharmacological characterization of glial cell line-derived neurotrophic factor (GDNF): implications for GDNF as a therapeutic molecule for treating neurodegenerative diseases" CELL & TISSUE RESEARCH, vol. 286, no. 2, November 1996 (1996-11), pages 179-189, XP000857762 -----	

INTERNATIONAL SEARCH REPORT

International application No.

PCT/DK 99/ 00384

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
Remark: Although claims 5, 23, 25, 26 (as far as in vivo methods are concerned), and claims 6, 24, 27, 28, 59-61, are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.